5   <Page 3>

[0011] The communication terminal of the second invention is characterized by that the communication terminal has a method to detect whether the procedure signal of the received call setup includes a transfer information from a caller side, and a method that

10   when this procedure signal includes transfer information, while the transfer information is taken out from a procedure signal, and the call is cut off in the communication terminal connected to the communication line which has two or more communication channels.

15   [0012] The communication terminal in the second invention detects whether the field of user/user Information of the procedure signal of the received call setup includes the transfer information from a caller is included, when transfer information is included, the transfer information is taken out of procedure signal, and also the

20   call is cut. When transfer information is not included, normal reception operation is performed. Therefore, even if two or more communication channels for actual information transmissions are used, transferring information is possible by receiving the procedure signal of a call setup including the transfer information

25   from a caller side through the communication channel for control signal transmission.

[0013] The communication terminal of the third invention is characterized by that the transfer information of the first or second invention is the information which shows the situation of equipment.

30   Therefore, while the communication terminal is even under communication, call or any operation, it is possible to transfer the transferring information showing the situation of terminal, such as

abnormalities of the terminal, usage of consumables and so on, to the other equipment like a service center, and, for example, urgent information is transferred from a caller like a service center.

[0014]

5   [Embodiment of the Invention]

Figure 1 is a block diagram showing the configuration of a facsimile apparatus as a communication terminal of this invention. The main control unit 1 not only controls each part of hardware of equipment through a bus, but also executes the software of such as

10   a communication procedure including such as control of RS232C according to coding and encoding the image data of a manuscript by coding method such as MH, MR, and MMR, changing modem and AT command based on software stored in ROM (not illustrated).

[0015] The main control unit 1 of the embodiment in the case of a

15   caller side, the field of user/user information (UUI) of SETUP message has such as abnormalities of equipment and ordering consumables which should be transferred to the other equipment and such information is sent out. When the other equipment received this procedure signal cut the call, it is judged that the

20   information was transmitted to the other equipment which knows that the data contained in this field are transfer information. When the other equipment accepts the call, since the other equipment is the equipment which does not know that the transfer information is included in UUI field, the call is cut.

25   [0016] Moreover, when the main control unit 1 is the case of a receiver detects, whether UUI field of the received SETUP message has the transfer information such as abnormalities of equipment and order of consumables from a caller, and when the transfer information is included, this transfer information is taken out and

30   the call is cut off, while when this transfer information is not included, the normal receiving operation is performed.

[0017] Incidentally, it is regulated in ITU-T Q series advice Q.931 that user/user Information of a maximum of 128 bytes of one message, which is set up in UUI field of SETUP message and the completion (RELEASE COMPLETION) message of release, is transmitted transparently between sender and receiver.

[0018] The printers 2 of such as an electrophotography system records the image data of a manuscript which received from other facsimile apparatus. A scanner 3 reads a manuscript by such as CCD, and outputs the image data of binary value, black and white, manuscript.

[0019] A control unit 4 is equipped with various kinds of function keys, such as a ten key, an one-touch key, and a program one-touch key which are required to operate equipment, and these function keys function as alphabetic character input key as well when message is set in UUI field of SETUP message by changing input mode. Moreover, a control unit 4 is equipped with a display like a liquid crystal display (it is written as LCD), and the message from a receiver or a caller, operating state of equipment, and image data of a manuscript are displayed.

[0020] RAM 5 consists of such as SRAM or a flash memory, and stores temporary data generated at the time of executing software. An image memory 6 consists of DRAMs and so on, and stores image data such as a manuscript.

[0021] LAP (Link Access Procedure)-B 11 controls Balanced Link Access procedure for B channels, and executes actual data communication by two channels B1 and B2. LAP-D 12 controls Link Access Procedure for D channels, and transmits line switching control signal by ISDN. The PCM (Pulse Code Modulation) codec 13 which is a voice codec method performs the interconversion of an analog sound signal and digital data. [0022] A modem 7 is a modem for transmitting the image data of the manuscript which the scanner 3 read to a G3 facsimile. A change-over unit 8 placed between a

modem 7 and PCM codec 13 consists of for example a relay switch, and changes the connection of PCM codec 13 between a telephone 9 and a modem 7. At the time of communication with G4, the read image date is coded and sent out to ISDN through LAP-B11, modem 5 7 and PCM codec 13 are not used.

[0023] Next, the case where the communication terminal of this invention is the equipment which provides a data communication service is exemplified, and the operation at the time of receiving a call of the communication terminal of this invention is explained 10 based on the flow chart of figure 2. When SETUP at D channel is received (step S2-1), the communication terminal judges whether the message is contained in the field of SETUP UUI (step S2-2). When the message is not contained in the UUI field, since it is the usual call setup signal, the usual reception processing is performed.

15 [0024] On the other hand, when the message is contained in the UUI field, the communication terminal detects the type of service which a caller side demands (step S2-3). If it is the case where the data distribution service is being demanded, the communication terminal detects the information number specified, as well as 20 detects a caller's telephone number (step S2-4). And the communication terminal sets the data showing the message being received in UUI field of RELEASE COMPLETION and sends out the data to a network (step S2-5), and then the connection is cut (step S2-6).

5   <Pages 4 to 8>
[Detailed Description of the Invention]
[0009] In this information providing system, a structure is used that, based on each moving history of two or more users as moving body, each value of information to the user whom information to be

10 provided is analogized and the suitable information for the user is provided.   This is based on that the moving history of the user, who is a moving body, is dependent on the user's interest and character. In other word, the user whom information to be provided and the other respective users are made the judgment about the similarity

15 based on the user's moving history and two or more of other users' each moving history.   Although the judgment based on the moving history means that the similarity of moving history between users directly, the judgment means similarity of users' interest and character indirectly.   Therefore, by determining the information

20 with which the user is provided based on the current position of the user whom the information is provided, it is possible to provide a guiding information related to the place and facilities where the other user who has similar interest and character has actually visited in the past.   Hence it is possible to provide information with

25 high probability which being effective for a user without relying on a view of user's profile or rule which are considered in advance.
[0010] Moreover, by judging the similarity between users not only in consideration of moving history but also in consideration of each of each user's user profile if needed, the similarity between users

30 can be judged more exactly.   In this case, a user profile can be such as preference, age, and sex, as comparatively easy things.

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[0011] Moreover, although each user's moving history is simply equivalent to the pattern of moving to a location or an area, it is desirable to use the moving pattern information which shows the inclination of the moving pattern to facilities for the user for every

5 user as moving history. Moving pattern information can be generated from the geographic information which shows the type and the location of two or more facilities as the candidate for guiding, and the above-mentioned moving history. Thereby, not only in consideration of a physical moving destination location but also in

10 consideration of the type of the facility of a moving destination, the similarity between users is judged or it is also possible to perform facility guidance of the suitable type for the use, and so on.
[0012]
[Embodiment of the Invention]

15 Hereinafter, the embodiment of this invention is explained with reference to figures.
[First embodiment]
With reference to figure 1, structure of the information providing system concerning the first embodiment of this invention is

20 explained first. This information providing system can perform information providing service according to each user's location for two or more users, it is possible to use i) mounting configuration of stand-alone type functional in the mobile information terminal of the user, ii) the mounting configuration of the network type which

25 operates communication mutually between information providing server and a mobile information terminal through network.
[0013] Figure 1 shows the functional configuration of the mobile information terminal which is applied the mounting configuration of the stand-alone type of i). This mobile information terminal is a user

30 terminal, which a user always can carry, for example, telephone/data communication facility by wireless, such as a personal computer, a PDA, a cellular phone, or those combinations,

is used. A location detection equipment 11, a moving history management unit 20, a similarity judging unit 30 between users, an guiding information generation unit 40, and the guiding information providing unit 50 are formed in this mobile information terminal like

5 illustration as a function for realizing this information providing system. The moving history management unit 20, the similarity judging unit 30 between users, the guiding information generation unit 40, and the guiding information providing unit 50 are realized by the computer program which can be performed by CPU of a

10 mobile information terminal.

[0014] The location detection equipment 11 is an equipment which detects the current location of the user who is carrying this mobile information terminal, for example, an equipment using GPS (global positioning system) and so on. are conceivable. The location is

15 computable as a combination of latitude and a longitude by carried the mobile information terminal with GPS equipment. This positional information is sent to the moving history management unit 20. Moreover, although the configuration which uses PHS (Personal Handyphone System) can be conceivable as other

20 example, in this case, the calculating machine on the network which cooperates with the exchange device connected to the base station functions as a location detection server. The positional information of a mobile information terminal can also be sent the location information of mobile information terminal to the moving history

25 management unit 20 by transmitting that current position serially from this location detection server to the mobile information terminal.

[0015] The moving history management unit 20 manages the moving history of two or more users including the user carrying this

30 mobile information terminal. This moving history management unit 20 consists of the moving historical-data generation unit 21 and the moving history records unit 22.

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[0016] In the moving history records unit 22, the moving historical data about two or more of other registered users other than the user carrying this mobile information terminal (user who receives service of an above-mentioned information providing server) have downloaded from the information providing server beforehand. This download can be performed when a user connects with an information providing server if needed, or it can also be performed automatically on a regular basis.

[0017] Moving historical data are expressed as user ID and location data as groups such as a time stamp as shown in figure 2. Location data are expressed by the method which uses coordinates such as latitude and longitude, and by indicating where the location belongs to among predetermined area. The definition of an area can be defined as an area by making a district of about 10 meters or so radius as one area, or by making facilities, such as a building, a theme park, an event hall, and a store, as a unit in defining the area. A time stump consists of serial numbers which show the time (date and time) into which the group of the corresponding moving historical data was registered, and the order (the order of moving) of registration.

[0018] The moving historical-data generation unit 21 obtains the positional information which shows the current location of the user carrying this mobile information terminal from the location detecting unit 10, generates moving historical data based on the positional information, and records the data in the moving history records unit 22. As timing to generate and record moving historical data, there are methods such as recording periodically, and recording the data when moving of a user is detected by a change of positional information and so on. By the function of the moving historical-data generation unit 21, the moving historical data about the user whom information is provided carrying this mobile information terminal, and each moving historical data of two

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or more of other users' are recorded and managed in the moving history records unit 22.

[0019] The similarity judging unit 30 between users is for judging the similarity between the user carrying this mobile information terminal whom information is provided and each of other user, and consists of the similarity judging processing unit 31 between users, and the similarity records unit 32 between users.

[0020] The similarity judging processing unit 31 between users, with the purpose of judging the similarity of interest and character between the users (shown as user concerned hereinafter) whom information is provided and other user, computes the similarity of the moving historical data about the user, and the moving historical data about each of other user, and records the similarity data between users obtained as a result on the similarity records unit 32 between users.

[0021] There are several possible timing to perform the similarity judgment processing, for example, a method of performing the similarity judging each of all other users about the user concerned whenever moving history of the user is updated, and a method of performing this similarity judging between the other users on regular basis. An example of the similarity judging method between users is shown below.

[0022] As an easy example of the similarity judging processing method between users by the similarity judging processing unit 31 between users, there is a method of counting the total of the area where the user and the other users have visited in a certain period as similarity. Thereby, the similarity of the moving history can be judged per between two users who are moving bodies. The similarity of this moving history means the similarity of activity pattern, as a result means the similarity of an interest or a character. The processing procedure of the similarity judging processing between users is shown in figure 3.

[0023] The similarity judging processing unit 31 between users searches first the area where the user has visited referring to the moving historical data of the user concerned (step S101). Subsequently, by referring to each of other user's moving historical data, in the area where the user concerned has visited, the similarity judging processing unit 31 between users investigates the total of the area where other users have visited for every user, and outputs the value as a list. (step S102) In this case, the value which divided the total of the area where the users had visited in common by the number of total areas where the user visited may be used as similarity between users. Moreover, about other users, as conditions whether the users have visited the area, it can be added as condition like "the user has visited the area within past half a year".

[0024] Moreover as other method as shown in figure 4, as conceivable method, preparing data row for each user by assigning, "1" if the user had visited each area, and "0" if the user had not visited, and computing the correlation between the data rows as similarity based on the mathematical technique, and describing with programming language are available. For example, when the user ID 1 is the user concerned, the correlation between the data row of the user ID 1 and user ID 2, the correlation of the data row between the user of user ID 1, and user ID 3, and the correlation of the data row between the user ID 1, and user ID 4   may be investigated one by one as shown in figure 4.

[0025] The guiding information generation unit 40 determines the guiding information to be provided to the user concerned based on the similarity data between users obtained by the similarity judging processing unit 31 between users, and the user's current position, and also outputs the guiding information after processing the data and so on if needed. This guiding information generation unit 40 consists of a guiding information generation processing unit 41, a

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guiding information database 42, and a guiding information records unit 43.

[0026] A lot of guiding information is stored in the guiding information database 42. Each guiding information consists of contents (the map of the facility neighborhood, a facility name, the information that introduces the outline of a facility, the telephone number of the facilities, the address of the facility and so on) for guiding (guidance) a user to moving destinations, such as a facility concerned. Respective guiding information is related with positional information.

[0027] The guiding information records unit 43 is a temporary storage unit like the memory for example, in a computer. The guiding information generation processing unit 41 obtains the similarity data between users about the user concerned from the similarity records unit 32 between users, obtains the moving history of the user concerned and other users from the moving history records unit 22, obtains guiding information data from the guiding information database 42, generates the guiding information data for the user concerned, and records the data on the guiding information records unit 43. The detail of the method is shown below.

[0028] As a simple method for guiding information generation processing, the location where other users who were most similar with the the user concerned visited is chosen, and obtains the guiding information about the location from a database 42, and the information is used as guiding information data. The detailed procedure of this example is shown in figure 5.

[0029] i) The guiding information generation processing unit 41 obtains the similarity data between users about the user concerned from the similarity records unit 32 between users, compares the value of the similarity data between the user concerned and each of all other users, and chooses one of other user with the highest

similarity (step S111). The user with the highest similarity is called temporarily the highest similarity user.

[0030] ii) Subsequently, the guiding information generation processing unit 41 obtains the current location of the user concerned from the moving history records unit 22 (step S112).

[0031] iii) The guiding information generation processing unit 41 obtains the moving historical data of the highest similarity user chosen by i) from the moving history records unit 22, and removes the location, shown by moving historical data of the user concerned, where the user concerned had visited (step S113).

[0032] iv) The guiding information generation processing unit 41 chooses the nearest location with the current location of the user concerned obtained by ii) from the locations where the user concerned has never visited obtained in iii) (step S114).

[0033] v) The guiding information generation processing unit 41 obtains the guiding information about the location obtained by iv) from the guiding information database 42, and outputs the information to the guiding information records unit 43 as guiding information data.

[0034] As the other methods of guiding information generation processing, for example, the number of visits are managed as moving history of every user for all other locations (area and facility), multiplying the number of visits and the degree of similarity, weighting the value and then totaling the values. The value calculated here is considered as goodness of fit, and it is .conceivable that guiding information of a place with the highest value is obtained out of the guiding information database 42. This situation is shown in figure 6.

[0035] In figure 6 , the user of user ID 1 is the user concerned, and the users of user ID 2-4 are other users. Suppose that the case where the number of the visits to area A-E by the user of user ID 2 are 3 times, 2 times, 7 times, 9 times, and 0 time here, respectively,

and the number of the visits of area A-E of the user of user ID 3 are 2 times, 1 time, 3 times, 0 time and 5 times, respectively, and the number of the visits of area A-E of the user of user ID 4 are 0 time, 0 time, 2 times, 4 times, and 0 time, respectively. And also suppose that the similarity between the user of user ID 2and the user concerned judged in the similarity judging processing unit 31 between users are that the user of user ID2 is "0.8" and the user of user ID 3 is "0.2" and the user of user ID 4 is "0.4". If the similarity between users corresponding to the number of visits for each user of user ID 2-4 is multiplied and a goodness of fit is calculated for every area, Area D is the highest at "8.8" and, subsequently Area C is at "7.0". If area A-D is in the guiding range (for example, comparatively large range, such as a range within walking distance) near the current position of user concerned, the guiding information on Area D is chosen as guiding data in area A-D. Since the user concerned has not visited Area D, the user can be provided with the information on the new effective location for the user concerned.

[0036] Moreover, the guiding information finally outputted is not just the information per se obtained out of the guiding information database 42, for example, it can be conceivable that the processing such as outputting the value calculated by the relation to the current location such as the distance to the guided place and adding the value, and changing the content of guiding information depending on the number of visits in the past.

[0037] The guiding information provide unit 50 provides the user carrying this mobile information terminal with guiding information generated in the guiding information generation unit 40, and different configurations can be conceivable depending on the type of data of the guiding information provided. For example, the guiding information provide unit 50 may be structured by an guiding information regenerating unit 52 with functions, such as the guiding

information display 51 for file display, or stream data playback and so on, or the guiding information provide unit 50 may consist of combination of the guiding information display 51 and the guiding information regenerating unit 52. Furthermore, when the

5 above-mentioned network type mounting configuration is used, the user of a mobile information terminal is provided with guiding information from an information provide server through a network, and the guiding information is displayed on a screen in a mobile information terminal.

10 [0038] In this embodiment, thus, by the analogy of each guiding information value for the user whom information is provided based on the moving history of two or more users as moving body, a structure providing appropriate information to the user concerned is used. Hence, guiding information related to a location, a facility

15 and so on where the other user, who has similar interest and character with the user, actually has visited in the past can be provided, and it is possible to provide the guiding information with high possibility which is effective for the user, and it is not necessary to rely on the user profile and rule which are considered

20 in advance.

[0039] The example of a configuration at the time of using the mounting configuration of an above-mentioned network type is shown in figure 7. Each mobile information terminal 1 is connected to the information provide server (contents server) 2 through

25 network such as the Internet. The above-mentioned moving history management unit 20, the similarity judging unit 30 between users, and the guiding information generation unit 40 are all prepared at the contents server 2 side. In the contents server 2, the moving history of two or more mobile information terminals 1

30 corresponding to two or more registered users respectively is managed, and the similarity between users with each of other multiple user is judged for every each user. And then on the

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analogy of each guiding information value based on the similarity between users and the current information, guiding information chosen by this method is sent to the user concerned through network from the content server 2.

5   [0040] Regarding mobile information terminal 1, there are two types of terminals.   One has the location detection equipment 11, such as GPS, and display/playback units 51 and 52, and the other does not have the location detection equipments 11, such as GPS, but has only display/playback units 51 and 52. Detection of the

10   location about mobile information terminal 1 without location detection equipment 11 is performed by the location detection server 3 which is a calculator on the network which operates in cooperation with the exchange connected to the base station, and the detected positional information is sent to the contents server 2

15   from the location detection server 3. [0041] In addition, it is not necessary to make the mobile information terminal which is a moving history management object as a destination which guiding information is provided, for example, moving history management is carried out using a user's cellular phone and so on, and the user

20   may be provided with guiding information related to facilities such as stores around the office and the nearest train station to user's personal computer in office.

[0042]

[Second embodiment]

25   The more particular example of the first embodiment is explained as the second embodiment of this invention.   In the information providing system of the second embodiment, the moving pattern information considering the type of facilities and the number of visits where user visited, and value of each guiding information is

30   presumed based on the similarity of the moving pattern between users. Moreover, each user's user profile is used as auxiliary information.

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[0043] Also in the information providing system of the second embodiment, the current invention is applicable to the embodiment of both a stand-alone type and a network type as the first embodiment.

[0044] Figure 8 shows the functional configuration of the mobile information terminal applied a stand-alone type for mounting configuration. This mobile information terminal has telephone/data communication functions by wireless, such as a personal computer, a PDA, a cellular phone and their combination is used. The mobile information terminal has a location detection equipment 11, a moving history management unit 20, a similarity judging unit 30 between users, a guiding information generation unit 40, a guiding information provide unit 50, and a user profile records unit 60 as shown in the drawing. The moving history management unit 20, the similarity judging unit 30 between users, the guiding information generation unit 40, and the guiding information provide unit 50 are realized by a computer program which can be performed by CPU of mobile information terminal.

[0045] Since the functions of location detection equipment 11, the moving history management unit 20, the similarity judging unit 30 between users, the guiding information generation unit 40, and the guiding information provide unit 50 are the same basically as explained in the first embodiment, the different point from the first embodiment is mainly explained.

[0046] In addition to the moving historical-data generation unit 21 and the moving history records unit 22, of figure 1, a user moving pattern extract unit 23, a geographic information records unit 24, and a user moving pattern records unit 25 are included in the moving history management unit 20. The moving historical-data generation unit 21 obtains location data from location detection unit 11 as an input, and outputs the data to the moving history records unit 22 as moving historical data. As timing which records moving

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historical data, the method of recording on regular basis, and the method of recording when moving of a user being detected are available. Moving historical data are expressed as a combination of user ID, a location data and a time stump as mentioned above.

[0047] The user moving pattern extract unit 23 reads the moving historical data outputted by the moving historical-data generation unit 21 from the moving history records unit 22, obtains geographic information data from the geographic information records unit 24, creates user moving pattern data using the data, and records it on the user moving pattern records unit 25. About the user moving pattern data for each of other user, the data is downloaded from an information provide server and is recorded on the user moving pattern records unit 25.

[0048] Geographic information is for associating the location and the various facilities which exist in the location, and shows the type of the two or more facilities and the location to where the user is guided. Specifically, the information is expressed as a combination of ID of a facility, the detail data of the facility, the genre (type) of a facility, the coordinate of a facility and so on. User moving pattern data is generated from the geographic information and the moving history of a user. User moving pattern data shows the inclination of the moving pattern of the user's facilities for every user by considering the type and the number of visits (cumulative) of the facility which user visited. This example is shown in figure 9.

[0049] In figure 9, user moving pattern data consists of a user ID, an ID of a stay place (a facility/location), a stay place genre, a duration (minute), an accumulation of the number of stays, and so on. Of course, it is desirable to also record a time stump along with positional information such as latitude and longitude, an area, and so on.

[0050] The flow chart of the example of the concrete pattern extract method in the user moving pattern extract unit 23 is shown in figure 10. For example, when user stays at within 50m for more than 15 minutes, the location is detected as a stay point, and then the facility ID of the location, the genre of the facility, the duration, the accumulation of the number of the stays in the past are recorded on the user moving pattern records unit 25 as a result of user moving pattern data, accordingly user moving pattern data is generated.

[0051] That is, for example, reading of the moving historical data about the user concerned is performed at the time when a certain amount of moving history data related to the user concerned is accumulated (step S122), and it is judged that whether the user stayed at within 50m for more than 15 minutes for every moving location of a user by the comparison of the time stump between continuous moving historical data, the comparison of positional information, and so on (step S123). When the user stops at within 50m for more than 15 minutes (NO of step S123), geographic information data is read, the information on a current location is obtained, user moving pattern data are created using the information and duration of stay related to a facility of the current location, and the user moving pattern data is recorded on the user moving pattern records unit 25 (step S124).

[0052] The similarity judging unit 30 between users consists of a similarity judging processing unit 31 between users, and a similarity records unit 32 between users. The similarity judging processing unit 31 between users performs similarity calculation processing using the parts related to the user concerned and the other user out of the moving pattern data for the user concerned, the moving pattern data for other respective user and data showing the characteristic of each user registered in advance in the user profile records unit 60, for the user whom the information is provided (user concerned hereinafter) for the purpose of judgment of the similarity

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for preference and character with other user, and records the similarity data between users chosen as a result on the similarity records unit 32. Some timings for performing the similarity judging are available, for example, the method performing similarity judgment for the user concerned and all other user whenever user's moving history is updated, and the method performing similarity judgment between all users on regular basis. A specific example of similarity judgment between users is explained below.

[0053] There is a method of describing the rule of a similarity judgment as an easy example of the similarity judgment between users by the similarity judging processing unit 31 between users. The example of this rule is shown in figure 11. For example, about the user concerned and a user whose similarity to be judged (degree of similarity), the judgment rule based on a user profile, such as "adding to similarity 5 points, if sex is the same", "adding to similarity 10 points, if the age group is the same", and "adding to similarity 3 points, if living in the same city", and the judgment rule based on the moving pattern of increasing and decreasing similarity depending on the number, a rate, and a common visit facility and so on are described. By performing judgment based on these rules, the similarity can be calculated. An example of the procedure of the similarity judging processing between users is shown in figure 12.

[0054] Reading all judgment rules one by one, according to the current judgment rule, the similarity point between the user concerned and other respective user is computed (step S131,132), and the point is added to the similarity point computed until now (step S133). The similarity data between (step S124) users can be obtained by repeating all judgment rules.

[0055] Moreover, the item of a user profile and the item of a moving pattern are created in numeric, and the correlation coefficient about

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the profile of the user to be judged, and the whole moving pattern are calculated. And then it is possible to use the created and calculated data as similarity, and also combine the data with the judgment method according to the rule.

[0056] The guiding information generation unit 40 consists of the guiding information generation processing unit 41, the guiding information database 42, the guiding information records unit 43, the moving candidate location generation unit 44, and the moving candidate location records unit 45.

[0057] In the guiding information database 42, the contents for guiding a user are stored as guiding information, and it is possible to read the guiding information data stored from the outside. The guiding information data are related at least with a location, and the expression by a combination of a facility and a guiding information character string can be exemplified.

[0058] Temporary storage like a memory, for example, in a computer as the guiding information records unit 43 can be conceivable, and the guiding information generated by the guiding information generation processing unit 41 is recorded.

[0059] The moving candidate location generation unit 44 generates the moving candidate location recommended to the user concerned from user moving pattern data, the similarity between users, a user profile and geographic information, and stores the generated data in the moving candidate location records unit 45. The example of a concrete moving candidate location generation method is shown in figure 13.

[0060] 1) First extract other users who had moved to the current location where the user whom information to be provided locates out of user moving pattern data (step S141).

[0061] 2) Rearranging the extracted other users in 1) by descending order in the similarity between users and the user concerned. (S142).

[0062] 3) Examining the rearranged order in 2) from the top, and judging whether the location where other users moved subsequently is suitable to recommend to the user concerned using a user profile and geographic information data (steps S143 and S144). The judgment is performed under the condition that the part which describing the description of the user concerned included in the geographic information data, the distance from the current location or the location where the user concerned has already visited on the same day are excluded.

[0063] 4) The examination is repeated until the result is judged as suitable to provide to the user concerned in 3), using the rearranged data 2) in the order. Thereby a location where the other user with similar preference and characteristic visited subsequently is outputted as moving candidate location.

[0064] The guiding information generation processing unit 41 obtains guiding information data from the moving candidate location records unit 45 and the guiding information database 42, generates the guiding information data for user concerned, and the data on the guiding information records unit 43. This concrete method is shown below.

[0065] The guiding information generation unit 41 obtains moving candidate location data from the moving candidate location records unit 45, and obtains the guiding information data equivalent to the moving candidate location from the guiding information database 42. As mentioned above, guiding information data are constituted as a combination of a location, a guiding information, and a profile of the user concerned, and may have two or more guiding information for one location. The profile of the user concerned is a description of a feature of a user having priority for guiding information to be provided, and a feature of a user whom guiding information should not to be provided. When a same location is recommended, it is possible to control the providing information, for

example, senior people can be provided with a guiding information indicating a route which is easier to go even a detour, or the information being prohibited to be provided for people less than 18 years old is provided for only people more than 18 years old.

5 [0066] The guiding information provide unit 50 consists of, for example, a guiding information display 51 and an guiding information regenerating unit 52. Different configuration can be conceived depending on the information to be provided. The guiding information display 51 and the guiding information
10 regenerating unit 52 obtain guiding information by methods, such as communicating with the guiding information records unit 43, and performing display and playback.